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images are processed in the background to effectively increase the capture rate of the camera. In a preferred embodiment, CPU 344 runs an operating system that includes a menu-driven GUI and provides image processing through software, rather than hardware. An example of such software is the Digita™ Operating Environment by FlashPoint Technology of San Jose, California. Although CPU 344 is preferably a microprocessor, one or more DSP□s (digital signal processor) or ASIC□s (Application Specific Integrated Circuit) could also be used.

Page 7, line 22

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Figures 2A and 2B are diagrams depicting exemplary hardware components of the camera's user interface 408. Figure 2A is back view of the camera 110 showing the LCD screen 402, a four-way navigation control button 409 having directional arrows 410a, 410b, 411a and 411b, an overlay button 412, a menu button 414, and a set of programmable soft keys 416. Figure 2B is a top view of the camera 110 showing a shutter button 418, and a mode dial 420. The camera may optionally include status LCD 406, status LCD scroll and select buttons 422 and 424, a sound record button 426, and zoom-in, zoom-out buttons 426a and 426b.

Page 10, line 21

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Figure 3B depicts a side view of the scene captured in the image 500 and the digital camera 110. The objects 502 and 504 are relatively close to the camera 110. The close objects are considered to be in the foreground 554 of the image. The object 506 is farther from the

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camera 110. The object 508 is very far from the camera 110 and, therefore, not depicted in Figure 3B. The objects 506 and 508 are considered to be in the background 556 of the image 500. Certain initial settings of the camera 110 are also indicated. The shutter (not shown) speed, focus distance 550, aperture (not shown), and, therefore, focus zone 552 are set. The focus distance 550 is distance from the image capture device which is most sharply in focus. The focus zone 552 is the range around the focus distance 550 in which objects will appear sharp and in focus. The range of the focus zone 552 may be limited by the conditions that the image 500 is taken under, such as the amount of light. Even when the aperture is set to obtain the smallest focus zone 552 which can be used, the focus zone 552 may include both the objects 502 and 504 and the object 506 which is farther from the camera 110. Not only the objects 502 and 504 but also the object 506 will appear in focus in the image 500 if the present invention is not utilized.

Page 12, line 11

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If the image 500 is determined to match the criteria in step 602, it is determined if certain objects are in focus, via step 604. In a preferred embodiment, it is determined if objects 506 and 508 in the background 556 are in focus. If the objects 506 and 508 are in focus, then the focus zone 552 is shifted to ensure that the objects 506 and 508 are not in focus, via step 606. Preferably, the focus zone 552 is shifted by moving the camera lens (not shown) with respect to the remainder of the camera 110. This shortens the focus distance 550. In a preferred embodiment, step 606 is only performed only if the focus zone 552 can be shifted sufficiently to ensure that the objects 506 and 508 in the background are not in focus. In a preferred

embodiment, the amount the zone 552 is shifted is greater than an amount required to make the nearest object 506 in the background 556 to be just outside the focus zone 552. This is because the amount of soft focus, or fuzziness of the objects 506 and 508 increases with increasing distance from the focus zone 552. The exact amount that the focus zone 552 is shifted, therefore, depends upon the criteria set for the desired amount of soft focus. The desired amount of soft focus may depend upon the manufacturer of the camera 110 or the user of the camera 110. Once the method 600 is completed, the image 500 is captured.

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Page ~~13~~, line ~~18~~

The focus points of objects within the image 500 are determined, via step 612. The focus points are the distances at which each object 502, 504, 506, and 508 are best focused. In a preferred embodiment, this step is performed by focusing on objects starting at an infinite distance from the camera 110, and moving to objects close to the camera 110. Thus, in a preferred embodiment, the objects 508 will be focused first, then the objects 506, then object 502, and then object 504. The initial aperture size, shutter speed, and focus distance 550 are then determined, via step 614. Setting the aperture size determines the focus zone 552. Based on the focus points determined in step 612 and the criteria set for the foreground and background, each object 502, 504, 506, and 508 is categorized as being in the foreground 554 or background 556, via step 616. As discussed above, the foreground 554 may be defined as a particular distance from the camera 110, such as three feet. It is then determined if the objects 502 and 504 in the foreground match the criteria set, via step 618. In a preferred embodiment, step 618 is performed

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by breaking the image 500 into zones. Data in the zones is then analyzed to determine which object 502, 504, 506, and 508 the data corresponds with, the total area of the image 500 occupied by each object 502, 504, 506, and 508, and the region of the image 500 in which each object 502, 504, 506, and 508 resides. Thus, it can be determined whether the object 502, 504, 506, and 508 is near the center or the edge of the image 500.

Page 15, line 2

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If it is determined in step 620 that the objects 506 and 508 are not in focus, then via step 624 the focus zone 552 may be shifted only if the image 500 is very bright. Step 624 may be performed because when the image 500 is very bright, objects 506 and 508, which are well outside of the focus zone 552 and would have a sufficiently soft focus if less light were available, are actually in focus. However, step 624 is optional. If it is determined in step 620 that the objects 506 and 508 are in focus, then the focus zone is shifted, via step 622. In a preferred embodiment, step 622 is performed by calculating the amount the focus distance 550 should be offset, and shifting the focus zone 552 that amount. Then, via step 626 the image 500 may be captured.

Page 15, line 11

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For clarity, Figure 6A depicts a graph of the focus versus the reciprocal of the distance from the camera 110 for each object 502, 504, 506, and 508. The plot 652 is the focus versus the reciprocal of the distance from the camera 110 for the object 502. The plot 654 is the focus

versus the reciprocal of the distance from the camera 110 for the object 504. The plot 656 is the focus versus the reciprocal of the distance from the camera 110 for the object 506. The distances at which the peaks in the plot 652, 654, 656, and 658 occurs corresponds to the focus points for the objects 502, 504, 506, and 508, respectively. Thus, the objects 502 and 504 are in the foreground 556, while the objects 506 and 508 are in the background 558 of the image 500.

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Page 16, line 9

Figure 7 depicts a more detailed flow chart of a preferred method 700 in accordance with the present invention. The feature that will allow the focus zone 552 to be shifted is selected by the user or automatically by the camera, via step 702. The camera 110 then performs a focus scan to obtain the focus points for the objects 502, 504, 506, and 508 within the image 500, via step 704. Preferably, this scan commences at an infinite distance from the camera 110 and completes very close to the camera 110. Also in step 704, data for all objects 502, 504, 506, and 508 is collected for each zone 670 through 693 during the focus scan. The graph depicted in Figure 6A could be generated from the data collected in step 704.

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Page 16, line 18

The data for the zones 670 through 693 is then analyzed to determine if the image 500 matches a set of criteria, via step 706. In a preferred embodiment, the analysis in step 706 includes categorizing objects 502, 504, 506, and 508 as being in the foreground 556 or the background 558. Also in a preferred embodiment, the foreground is defined a set distance from

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